

***Remarks***

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1-16 and 21 are pending in the application, with claims 1, 12, and 21 being the independent claims. By this amendment, Applicant seeks to amend claims 1, 10, and 12. New claim 21 is sought to be added. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding rejections and that they be withdrawn.

**Rejections Under 35 U.S.C. § 101**

Claims 1-16 stand rejected under 35 U.S.C. 101 because the claims are allegedly directed to non-statutory matter. Applicants respectfully traverse the rejection.

Independent claims 1 and 12 have been amended to recite an encoder and decoder. Support for the amendments can be found, for example, at paragraphs [0027], [0028], FIG. 2, and elsewhere in the originally filed application. Thus, Applicants submit that claims 1 and 12 fully comply with 35 U.S.C. § 101.

Claims 2-11 and 13-16 depend from claims 1 and 12, respectively. Thus, claims 2-11 and 13-16 are allowable at least for the reasons claims 1 and 12 are allowable, and for the specific distinguishing features recited therein.

Reconsideration and withdrawal of the rejection under 35 U.S.C. 101 is therefore respectfully requested.

**Rejections Under 35 U.S.C. § 103**

**Claims 1-4, 6, 8-14 and 16**

Claims 1-4, 6, 8-14 and 16 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over CS4205 (CrystalClear Audio Codec '97 product information document, hereinafter "CrystalClear") in view of Voth (U.S. Patent No. 6,957,284, hereinafter "Voth"). Applicants respectfully traverse the rejection.

The independent claims recite features distinguishing over the cited references.

Claims 1 and 12 recite, for example:

... using a 2-line serial multi-channel audio interconnect data bus including only a first signal line and a second signal line;

...  
wherein only the first signal line and the second signal line form the 2-line serial multi-channel audio interconnect data bus structured to communicate audio.

These features are discussed, for example, in Applicants' specification in paragraphs 0026 to 0028, and are illustrated in FIG. 2.

The Office Action states that "CS4205 does not explicitly disclose using "only" a first signal line and a second signal line," (Office Action, p. 8). Further, the Office Action alleges, to which Applicants do not acquiesce, that CrystalClear teaches "SDATA\_OUT signal line and SYNC signal line are sufficient/enough for communicating audio data," (Office Action, p. 8). Applicants disagree that SDATA and SYNC lines alone are sufficient for communicating serial multi-channel audio, because a clock line is also required in CrystalClear, such that at least three lines are required in CrystalClear. Although CrystalClear teaches that SCLK *generation* in the CS4205 is optional: "[s]ome audio DACs can run in an internal SCLK mode where SCLK is internally *derived from MCLK and LRCLK*. In this case, SCLK generation in the CS4205 is optional," (emphasis added; CrystalClear, section 6.1, page 53), it appears that a clock is still required in CrystalClear for

communicating serial multi-channel audio, because MCLK and LRCLK are relied on for deriving SCLK when *generation* of SCLK is optional. As to MCLK that is relied on, CrystalClear states that "[t]he existing 256 Fs BIT\_CLK will be used as MCLK," (CrystalClear, section 6.1, page 53). And as explained below, BIT\_CLK is one of at least three lines required in CrystalClear.

As set forth in the Amendment filed April 9, 2009, CrystalClear teaches that at least three lines are required for an interface or bus transmitting audio in CrystalClear. The AC-link interface of CrystalClear *requires* a clock line BIT\_CLK (see section 4, page 19, figure 14). Because the CS4205 audio codec generates its own clock signal and all communication is synchronous with this clock signal, the CS4205 audio codec must transmit this clock signal, BIT\_CLK, to all relevant components interfacing via AC-link in order to synchronize devices for serial data frames. "When SYNC goes active (high) and is sampled active by the CS4205 (on the falling edge of BIT\_CLK), both devices are synchronized to a new serial data frame," (CrystalClear, section 4, page 19). "BIT\_CLK is generated by the primary audio codec and is used to clock the controller and any secondary audio codecs," (CrystalClear, section 2.1, page 13). Thus, in CrystalClear, at least one line is required for SDATA, at least one line is required for SYNC, and at least one line is required for a clock (e.g., BIT\_CLK).

The Office Action states that "CS4205 [i.e., CyrstalClear] does not explicitly disclose using "only" a first signal line and a second signal line," (Office Action, p. 8). To allegedly remedy the deficiencies of CrystalClear, the Office Action relies on Voth. FIG. 2 of Voth illustrates Data<sub>1</sub> line and Clock<sub>1</sub> line used to transfer data packets. However, Applicants note that although FIG. 2 of Voth merely *illustrates* two lines Data<sub>1</sub> and Clock<sub>1</sub>, Voth teaches that "[i]ncluded in each single cable are *at least two additional lines* (see FIG. 2). The first additional line provides power... [t]he second additional line provides a common ground," (emphasis added; Voth, col. 5, lines 60-64).

Therefore, Voth describes at least two additional lines in referring to FIG. 2, appearing to require at least four lines total. Accordingly, Applicants submit that Voth fails to remedy the deficiencies of CrystalClear, because Voth fails to teach that "only the first signal line and the second signal line form the 2-line... bus," as recited in the claims.

Furthermore, in addition to the above deficiencies of Voth regarding the number of lines, Applicants submit that FIG. 2 of Voth fails to illustrate communication of multi-channel audio. To the contrary, FIG. 2 merely appears to be directed to sending data packets using data and clock lines (and the additional power/ground lines). Accordingly, using only the data and clock lines (and power/ground lines) of Voth in CrystalClear as the Office Action suggests, would appear to prevent transmission of serial multi-channel audio in CrystalClear, because the combination would lack a SYNC line, and therefore render CrystalClear unsatisfactory for its intended purpose.

CrystalClear appears to require the SYNC line, stating that, for example, "[t]he controller synchronizes the beginning of a frame with the assertion of the SYNC signal. ... When SYNC goes active (high) and is sampled active by the CS4205... both devices are synchronized to a new serial data frame," (CrystalClear, section 4, p. 19; see also FIG. 14). If a proposed modification (e.g., using Voth's data lines lacking a SYNC line) would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984).

As explained above, FIG. 2 of Voth fails to illustrate communication of multi-channel audio. Although FIG. 1 of Voth supports audio communications, FIG. 1 of Voth illustrates the use of *three* lines ( $\text{data}_1$ ,  $\text{clock}_1$ , and  $\text{audio}_1$ ), plus the two additional power/ground lines as explained above regarding FIG. 2. Thus, Voth fails to teach or suggest "using a 2-line serial multi-channel audio interconnect data bus including only a first signal line and a second

signal line; ... wherein only the first signal line and the second signal line form the 2-line serial multi-channel audio interconnect data bus structured to communicate audio," as recited in independent claims 1 and 12. Thus, the combination of CrystalClear and Voth does not teach or suggest all of the distinguishing features recited in claims 1 and 12.

Claims 2-4, 6, 8-11, 13, 14, and 16 depend from claims 1 and 12, respectively. For at least the reasons set forth above regarding claims 1 and 12, and further in view of their own distinguishing features, claims 2-4, 6, 8-11, 13, 14, and 16 are patentable over the combination of CrystalClear and Voth.

Reconsideration and withdrawal of the rejection under 35 U.S.C. § 103 is therefore respectfully requested.

**Claims 5 and 15**

Claims 5 and 15 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over CrystalClear in view of Voth, and further in view of Wolf (U.S. Patent No. 7,088,398, hereinafter "Wolf"). Applicants respectfully traverse the rejection.

Wolf fails to overcome the deficiencies of CrystalClear and Voth relative to claims 1 and 12, described above. Claims 5 and 15 depend from claims 1 and 12 respectively, and are allowable at least for the reasons claims 1 and 12 are allowable. For at least these reasons and further in view of their own features, claims 5 and 15 are patentable over the combination of CrystalClear, Voth, and Wolf.

Reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) is therefore respectfully requested.

**Claim 7**

Claim 7 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over CrystalClear in view of Voth, and further in view of Wakazu (U.S. Patent No. 6,006,287, hereinafter "Wakazu"). Applicants respectfully traverse the rejection.

Claim 7 depends ultimately from claim 1. Wakazu does not overcome all of the deficiencies of CrystalClear and Voth relative to claim 1, described above. For at least these reasons, and further in view of its own features, claim 7 is patentable over the combination of CrystalClear, Voth, and Wakazu.

Reconsideration and withdrawal of the ground of rejection is therefore respectfully requested

**New Claim 21**

New independent claim 21 recites, for example, features similar to the distinguishing features of independent claims 1 and 12, discussed above. Support for claim 21 can be found, for example, at paragraphs [0027], [0028], FIG. 2, and elsewhere in the originally filed application. Thus, for at least the reasons set forth above regarding claims 1 and 12, and further in view of its own distinguishing features, Applicants respectfully submit that claim 21 is patentable over the cited references.

***Conclusion***

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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